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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/719,153	03/16/2001	Christian Marzolin	200741US6PCT	7028
22850	7590	02/25/2005	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			BOYD, JENNIFER A	
			ART UNIT	PAPER NUMBER
			1771	
DATE MAILED: 02/25/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/719,153

Applicant(s)

MARZOLIN ET AL.

Examiner

Jennifer A Boyd

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 07 February 2004.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-11, 13-18, 20 and 21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11, 13-18, 20 and 21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Response to Amendment***

1. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn. The Applicant's Amendments and Accompanying Remarks, filed September 3, 2004, have been entered and have been carefully considered. Claims 1 and 13 are amended, claims 12, 19 and 22 – 23 are cancelled and claims 1 – 11, 13 – 18 and 20 – 21 are pending. In view of Applicant's amendment to the independent claims 1 and 13 requiring that the thickness of the photocatalytic coating is "comparable" to a mean size of crystallites of the at least partly crystallized titanium oxide in anatase form, the Examiner withdraws the 35 USC 112 rejection as detailed in paragraphs 4 – 6 and the 35 USC 103 rejections as detailed in paragraphs 7 – 10 of the Office Action dated July 8, 2004. Due to Applicant's amendment to independent claims 1 and 13, the Examiner has been required to conduct a new search. The invention as currently claimed is not found to be patentable for reasons herein below.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

### ***Claim Rejections - 35 USC § 112***

3. Claims 1 and 13 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant

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art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claims 2 – 11, 14 – 18 and 20 – 21 are rejected as being dependent on rejected independent claims 1 and 13.

4. The amendment to independent claims 1 and 13 “which is *comparable* to the mean size of crystallites of the at least partly crystallized titanium oxide in anatase form” is not supported by the Specification. On page 10, lines 16 – 21, the Applicant states in the Specification that “This sheathing ensures maximum effectiveness of the coating, its photocatalytic activity increasing as it is distributed over a greater specific surface. The most preferred thickness takes into account the most commonly encountered mean size of the anatase TiO<sub>2</sub> crystallites”. It should be noted that the Specification states that the thickness “takes into account” and does not state that the thickness is “*comparable* to a mean size of crystallites”. The phrase “takes into account” is a very broad limitation and does not necessarily require that the size is *comparable* to the means size of the crystallites.

5. Claims 1 and 13 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for “*particles* of TiO<sub>2</sub> crystallized in anatase form, probably composed of crystallite agglomerates, have a mean size of the order of 20 to 80 nm”, does not reasonably provide enablement for *crystallites* having a mean size of the order of 20 to 80 nm. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims. The Applicant indicates in the Arguments on page 3 of the Appeal Brief that the TiO<sub>2</sub> *crystallites* have “a mean size of the order of 20 to 80”. Upon examination of the Specification, it is noted on page 14 of the Specification that the Applicant makes the following statement: “This solution

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containing particles of TiO<sub>2</sub> crystallized in anatase form, probably composed of crystallite agglomerates, these *agglomerates* having a mean size of the order of 20 to 80nm. These particles are therefore “active” components in terms of photocatalysis”. Therefore, the particle size or size of the crystallite agglomerates is on the order of 20 to 80nm not the size of the individual crystallites.

### ***Response to Arguments***

6. Applicant's arguments with respect to claims 1 – 11, 13 – 18 and 20 - 21 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Chopin (US 6,037,289) teaches a substrate provided with a coating of titanium dioxide on one of its faces which is incorporated in the coating in the form of particles predominately crystallized in the anatase form (Abstract). The thickness of the coating is variable. It is generally between 5 nm and 1 micron, preferably between 5 nm and 100 nm, more preferably still between 5 and 80 nm (column 4, lines 65 – 69 and column 5, lines 1- 5). It can depend on various parameters such as the envisaged application of the substrate or on the size of the titanium dioxide particles in the coating (column 5, lines 1 – 15). Chopin fails to teach that the substrate is a fibrous material.


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Matsubara (JP 10025696 A) teaches a photocatalyst-containing sheet and its production (Title). Matsubara teaches a papermaking process wherein photocatalytic particles having an average size from 1 – 30 nm is incorporated with wood pulp, organic or inorganic fibers and a polyvinyl based binder to create a photocatalytic substrate. The photocatalytic material is titanium oxide and can in be anatase form (page 3, [0014].

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A Boyd whose telephone number is 571-272-1473. The examiner can normally be reached on Monday thru Friday (8:30am - 6:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on 571-272-1478. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Jennifer Boyd  
February 17, 2005

  
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SUPERVISORY PATENT EXAMINER  
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